

What is claimed is:

1. A system comprising:
a film that self-generates an electrical signal in response to an external agent
5 applied to a location on the film; and
a sensor configured to detect the electrical signal at a plurality of positions on the
film to determine the location where the external agent is applied to the film.
- 10 2. The system according to claim 1 further comprising a controller coupled to the
sensor and adapted to determine the location where the external agent is applied to
the film.
- 15 3. The system according to claim 1 wherein the external agent comprises a touch
implement.
4. The system according to claim 1 wherein the self-generated electrical signal is
generated at the location where the external agent is applied to the film.
- 20 5. The system according to claim 1 wherein the film is piezoelectric.
6. The system according to claim 1 wherein the film is pyroelectric.
- 25 7. The system according to claim 1 employed in a touch sensor to detect a location of
an applied touch.
8. The system according to claim 1 being optically transmissive.
9. The system according to claim 1 being optically opaque.
- 30 10. The system according to claim 1 wherein the self-generated signal is an electric
current.

11. The system according to claim 1 wherein the self-generated signal is a voltage.

12. The system according to claim 1 further comprising one or more electrically continuous electrodes disposed on at least one side of the film.

5

13. A system comprising:

a film that self-generates an electrical signal in response to an external agent applied to a location on the film, the self-generated electrical signal producing at least a first detectable signal at a first position on the film and a second detectable

10

signal at a second position on the film; and
a controller adapted to receive at least the first and second detectable signals to determine the location where the external agent is applied to the film.

14. The system according to claim 13 further comprising a sensor coupled to the film and the controller and configured to detect at least the first and second detectable signals and transmit the detected signals to the controller.

15

15. A touch sensor comprising:

a film that self-generates an electrical signal in response to a touch implement applied to a location on the film, the touch location being determined by detecting the electrical signal at a plurality of positions on the film.

20

16. The touch sensor according to claim 15 wherein the film is piezoelectric.

17. The touch sensor according to claim 15 wherein the film is pyroelectric.

25

18. The touch sensor according to claim 15 wherein the film is piezoelectric only in pre-determined regions:

19. The touch sensor according to claim 15 wherein the film is pyroelectric only in pre-determined regions.

30

20. The touch sensor according to claim 15 being optically transmissive.

21. The touch sensor according to claim 15 wherein the touch location is determined by detecting the electrical signal at two locations on the film.

22. The touch sensor according to claim 15 wherein the touch location is determined by detecting the electrical signal at four locations on the film.

23. The touch sensor according to claim 15 being rigid.

24. The touch sensor according to claim 15 being flexible.

25. The touch sensor according to claim 15 being combined with a display.

26. The touch sensor according to claim 15 further comprising one or more electrically continuous electrodes disposed on at least one side of the film.

27. The touch sensor according to claim 26 wherein the electrically continuous electrodes are uniform to within 10%.

28. The touch sensor according to claim 26 wherein the electrically continuous electrodes are uniform to within 2%.

29. The touch sensor according to claim 26 wherein the electrically continuous electrodes are uniform to within 0.5%.

30. The touch sensor according to claim 15 further comprising at least one additional film where each additional film has the property of self-generating a signal in response to the touch implement where the signal generated by each additional film can be generated at the touch location.

31. The touch sensor according to claim 26 wherein the continuous electrodes are optically transmissive.

32. The touch sensor according to claim 26 wherein the continuous electrodes
5 comprise indium tin oxide.

33. The touch sensor according to claim 26 wherein the continuous electrodes
comprise an optically transmissive conductive polymer.

10 34. A touch sensor comprising:

a film that self-generates an electrical signal in response to a touch implement applied to a location on the film, the touch location being determined by at least a first sensor detecting a first detectable signal produced by the self-generated electrical signal at a first position on the film and a second sensor detecting a second
15 detectable signal produced by the self-generated electrical signal at a second position on the film.

35. A method of determining a touch location comprising the steps of:

defining a touch sensitive area comprising a film that self-generates an electrical
20 signal in response to an applied touch input;

detecting a plurality of detectable signals produced in response to the self-generated electrical signal; and

using the plurality of detectable signals to determine the touch location.